

BEST AVAILABLE COPY**REMARKS****Response to §103 Rejections of Claims 1-17**

In the Office Action dated August 22, 2005, the Examiner rejected claims 1-17 under 35 U.S.C. §103(a) as alleged obvious over the combination of Applicants' admitted prior art (hereinafter "AAPA") in the instant specification of the present application with U.S. Patent Application Publication No. 2002/0151170 to Maex et al. (hereinafter "Maex") and U.S. Patent No. 5,952,094 to Van Kestersen et al. (hereinafter "Van Kestersen").

Applicants respectfully traverse the §103 rejection of claims 1-17, for the following reasons:

Claim 1, from which claims 2-16 depend, positively recites the use of a Co layer containing at least Ni on top of a SiGe containing substrate to form "a solid solution of (Co, Ni) disilicide on the SiGe containing substrate," whereby the Ni reduces the formation temperature of the disilicide as compared to a Co layer not containing the Ni. Claim 17 recites similar limitations as those quoted hereinabove.

The AAPA discloses formation of Co disilicide on top of a SiGe containing substrate by using a Co layer not containing Ni. On the other hand, the Maex reference discloses a process of forming a cobalt-nickel alloy disilicide ($\text{Co}_x\text{Ni}_{1-x}\text{Si}_2$) on a silicon substrate by using a Co and Ni alloy (see Maex, paragraph [0008], [0013] and [0015]).

The Examiner asserted that it would have been obvious for a person ordinarily skilled in the art to add Ni to the Co layer disclosed by AAPA in order to accelerate the formation of disilicide phase.

Applicants respectfully disagree.

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It has been well established that in order to establish obviousness, there must be a reasonable expectation of success in combining the prior art references to yield applicant's claimed invention, and that such a reasonable expectation of success must be found in the prior art, not in applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the present case, the disclosure of Maex reference is limited to a silicon substrate, and it only teaches that the presence of Ni can accelerate the formation of disilicide phase on a silicon substrate.

However, nothing in Maex provides or supports a reasonable expectation of success that addition of Ni into a Co layer can also accelerate the formation of CoSi₂ on a SiGe substrate. The presence of Ge atoms in the underlying substrate interferes with the nucleation of CoSi₂ on the substrate surface, and Maex does not, in any manner, teach or suggest that Ni can function in the same manner in the presence of Ge atoms to also accelerate the formation of disilicide phase on the SiGe substrate.

Therefore, the combination of the AAPA and the Maex reference is not supported by a reasonable expectation of success. Instead, such combination is derived out of impermissible hindsight of Applicants' disclosure, and it thus cannot be used to support a *prima facie* case of obviousness against Applicants' claimed invention.

The Van Kesteren reference discloses addition of Os or Re to the Co layers of a magneto-optical recording medium that comprises alternating Co layers and other metal layers such as Pt, Pd, Au, Ni, or Ru, so as to reduce the Curie temperature and the magnetization of the magneto-optical recording medium (see Van Kesteren, column 1, lines 61-67, and column 2, lines 40-56). Nothing in Van Kesteren is related to Co or Ni disilicide formation, much less formation of (Co, Ni) disilicide on a SiGe substrate.

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Therefore, Van Kesteren cannot remedy the above-described deficiency of AAPA and Maex.

In summary, claims 1-17 of the present invention patentably distinguish over the cited references, i.e., the AAPA, Maex, and Van Kesteren.

Further, Applicants have hereby amended claim 17 to recite a first anneal and a second anneal that are both carried out using "a rapid thermal annealing process in a gas atmosphere containing at least one gas selected from the group consisting of He, Ar, N₂ and forming gas." Support for such amendment is provided by the instant specification in paragraph [0035].

The AAPA fails to provide any details about the annealing steps. The Maex reference only discloses a two-step rapid thermal processing (RTP) silicidation process (see Maex, paragraph [0077]), but it fails to teach or suggest use of a gas atmosphere containing at least one gas selected from the group consisting of He, Ar, N₂, or forming gas. The Van Kesteren reference does not disclose any annealing step.

Therefore, claim 17 of the present application further distinguishes over the cited references, by reciting a rapid thermal annealing process in a gas atmosphere containing at least one gas selected from the group consisting of He, Ar, N₂ and forming gas.

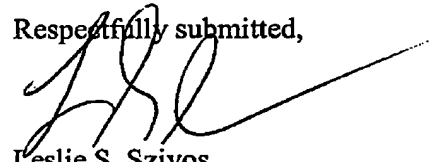
The Examiner is therefore requested to reconsider, and upon reconsideration to withdraw, the rejections of claims 1-17.

Applicants hereby submit that the present application is in condition for allowance. Issue of a Notice of Allowance for the application is therefore requested.

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If any issues remain outstanding, incident to the formal allowance of the application, the Examiner is requested to contact the undersigned attorney at (516) 742-4343 to discuss same, in order that this application may be allowed and passed to issue at an early date.

Respectfully submitted,



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